

## 03050201-070

(Goose Creek)

### General Description

Watershed 03050201-070 is located in Berkeley, Charleston, and Dorchester Counties and consists primarily of *Goose Creek* and its tributaries. The watershed occupies 38,633 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Bohicket-Bladen-Wahee-Yonges series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.5% urban land, 31.8% forested land, 17.8% forested wetland, 3.4% scrub/shrub land, 2.6% agricultural land, 2.6% water, 0.2% nonforested wetland, and 0.1% barren land.

Ancrum Swamp and Huckhole Swamp flow into Bluehouse Swamp (Ladson Branch, McChune Branch) to form the headwaters of Goose Creek, which is dammed into Goose Creek Reservoir and used for recreation and water supply. Goose Creek is classified FW from its headwaters to the Goose Creek Reservoir Dam, and SB downstream from the reservoir. Turkey Creek (SB) flows into Goose Creek downstream of the reservoir near the Town of Hanahan. Old Goose Creek drains into Goose Creek as does New Tenant Pond, Brown Pond, and Logan Pond before it flows into the Cooper River. The entire watershed is within the U.S. Naval Reserve. There are a total of 52.7 stream miles in this watershed, and 2.7 square miles of estuarine areas.

### Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
MD-114	P	FW	GOOSE CREEK AT U.S. 52 N CHTN
ST-033	W	FW	GOOSE CK RES. AT 2ND POWER LINES UPSTREAM OF BOAT RAMP
MD-113	P	FW	GOOSE CREEK RESERVOIR AT CHAS WTR INTAKE
ST-032	P	FW	GOOSE CREEK RESERVOIR 100 M UPSTREAM OF DAM
MD-039	P	SB	GOOSE CREEK AT S-08-136 BRIDGE

*Goose Creek* - There are two SCDHEC ambient monitoring network sites along Goose Creek. At the site above Goose Creek Reservoir (**MD-114**), aquatic life uses are not supported due to dissolved oxygen excursions, compounded by pH excursions. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are fully supported at **MD-039**; however there is a significant increasing trend in turbidity. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

**Goose Creek Reservoir** - Goose Creek Reservoir has a watershed covering 15.9 km<sup>2</sup>, a surface area of 242.8 hectares, and a maximum and mean depth of 4.3m and 2.4m, respectively. Swimming and boating usages of the lake may be impaired due to abundant submerged aquatic plants lakewide, and emergent and floating plants near the dam. Goose Creek Reservoir has been treated annually for the past ten years with aquatic herbicides in an attempt to control the growth of aquatic macrophytes that have impaired the lake's recreational and water supply uses. Fishing is also impaired due to low dissolved oxygen levels. Grass Carp were introduced into the reservoir in 1991 (10 fish/vegetated acre or 4000 fish), and restocked in 1995 (15 fish/acre or 6,000 fish).

There are three SCDHEC ambient monitoring network sites on Goose Creek Reservoir. Although pH excursions occurred and copper exceeded the aquatic life acute standards at the furthest uplake site (**ST-033**), due to the small number of samples, aquatic life use support determination is inconclusive. Recreational uses are fully supported at this site. At **MD-113**, aquatic life uses are not supported due to dissolved oxygen excursions, compounded by significant decreasing trends in dissolved oxygen concentration. There is also significant decreasing trends in pH. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions. At **ST-032**, aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by significant increasing trends in total phosphorus concentrations, total nitrogen concentrations, and turbidity, and a very high concentration of zinc measured in 1994. There is also a significant increasing trend in pH. Recreational uses are fully supported.

## NPDES Program

### Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)</i>	<i>NPDES# TYPE LIMITATION</i>
GOOSE CREEK CITY OF HANAHAN PIPE #: 001 FLOW: 1.3 WQL FOR NH3-N	SC0021041 MAJOR DOMESTIC WATER QUALITY
GOOSE CREEK CHARLESTON CPW/HANAHAN WTP PIPE #: 001 FLOW: M/R	SC0040266 MINOR DOMESTIC EFFLUENT

## Nonpoint Source Management Program

### Mining Activities

<i>MINING COMPANY MINE NAME</i>	<i>PERMIT # MINERAL</i>
BANKS CONSTRUCTION COMPANY LAKEVIEW MINE	0488-19 SAND/CLAY
BUTLER WARE TRUCKING, INC. TAYLOR STREET PIT	0737-19 SAND/CLAY

ROBERT O. COLLINS COMPANY, INC.  
SPRINGROVE MINES

0595-19  
SAND/CLAY

LB CARSON  
GRANT CITY NORTH

0818-19  
SAND

### ***Land Disposal Activities***

#### **Landfill Facilities**

***SOLID WASTE LANDFILL NAME***  
***FACILITY TYPE***

***PERMIT #***  
***STATUS***

M&S DEVELOPMENT CO.  
INDUSTRIAL

IWP-136  
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G&S ROOFING PRODUCTS  
INDUSTRIAL

102434-1601 (IWP-046, IWP-162)  
ACTIVE

ROBERT O. COLLINS C/C LANDFILL  
CONSTRUCTION

102407-1201 (CWP-039)  
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PEPPERHILL DEVELOPMENT C&D  
CONSTRUCTION

182441-1201 (182441-1601)  
ACTIVE

S.C. PUB. SERV. AUTH./CHARLESTON  
MUNICIPAL

DWP-004  
CLOSED

WESTVACO/CHARLESTON CO.  
INDUSTRIAL

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CLOSED

#### **Land Application Sites**

***LAND APPLICATION SYSTEM***  
***FACILITY NAME***

***ND#***  
***TYPE***

SPRAYFIELD  
CHARLESTON CPW/HANAHAN

ND0073491  
DOMESTIC

### ***Groundwater Contamination***

The groundwater in the vicinity of the property owned by DFSC - Perimeter Road (#16456) is contaminated with petroleum products resulting from spills and leaks. The facility is currently in the remediation phase, and an upgrade is pending. The surface water affected by the groundwater contamination is a tributary to Turkey Creek.

### **Water Supply**

***WATER USER (TYPE)***  
***STREAM***

***REGULATED CAPACITY (MGD)***  
***PUMPING CAPACITY (MGD)***

CITY OF CHARLESTON (M)  
GOOSE CREEK RESERVOIR

125.0  
150.0

### **Growth Potential**

The primary population growth areas in this watershed include the Town of Hanahan, North Charleston, and Berkeley County. In addition, the Charleston County Parks and Recreation Commission has purchased a large parcel of land above Goose Creek Reservoir for development as a county park. The interbasin transfer of fresh water via a pipeline connecting the Edisto River to the Hanahan WTP will help to provide for growth in this area.

## **Watershed Protection and Restoration**

### ***Special Projects***

#### **Goose Creek Reservoir Restoration**

Goose Creek Reservoir is located in Berkeley County, north of the City of Charleston. Nuisance aquatic plant growth, and fish kills as a result of low dissolved oxygen, have occurred. Through a Section 319 grant, a group of cooperating agencies, led by the Berkeley County Soil and Water Conservation District, is conducting NPS educational programs and demonstrations. Included will be a Lake Fair, an event that gets lake and watershed residents actively involved in improving the water quality of their lake.